Summary of Waste Disposal Guidelines for JABSOM/UHCC Kaka'ako

GENERAL WASTE

This guide was developed to assist campus tenants in disposal of waste materials generated by official Kaka'ako operations. These procedures do not apply to the disposal of personal or household wastes. Personal property should not be brought on campus for disposal since UH must pay for all wastes that are disposed of. The University of Hawaii is subject to very strict regulations regarding the disposal of almost anything. The U.S. Environmental Protection Agency, State of Hawaii Department of Health, City and County of Honolulu, and private landfills all have their own rules and regulations that apply to various types of waste material and these rules change frequently. Potential penalties include fines, rejection of entire loads and denial of access to the disposal facilities. Each tenant must assist in assuring that wastes are properly segregated and disposed of appropriately.

JABSOM has one trash compactor. Trash is compacted (crushed) when the trash compactor gets full; this operation is performed by Facilities or Security. This is why the following materials **should not** be placed into the trash compactor:

- **Lumber / Metal** - even a short piece can cause the compactor blade to jam.
- **Wet / Liquid wastes** - containers containing liquids are often broken during the compacting process and leak out.
- **Unpackaged glass** - the glass may shatter during compaction posing a hazard to compactor operators. Be sure to securely pack glass items.
- **Powdery material** - such as sawdust, ash, etc. should be double bagged to prevent release in truck during compaction.
- **Regulated Waste (hazardous, biological, radioactive)** - it is illegal to dispose of regulated waste in the municipal waste stream.

REGULATED WASTES

These guidelines will assist you with determining how to properly dispose of materials and supplies that are commonly used in research laboratories. These procedures are specific for JABSOM/UHCC Kaka'ako but may refer to more general guidelines as well. If you have any questions, please contact the **JABSOM EHS (692-1854/ 692-1855)** or contact the various Safety Programs at UH EHS Safety Programs.

- **BIOLOGICAL OR INFECTIOUS WASTES**
- **CHEMICAL WASTES & DRAIN DISPOSAL RESTRICTIONS**
- **MIXED BIOLOGICAL AND CHEMICAL WASTES**
- **SHARPS (INFECTIOUS BIOLOGICAL, CHEMICAL, NON-CONTAMINATED)**
- **RADIOACTIVE WASTES**
- **GLOVES**
- **OTHER WASTE CATEGORIES (LAB EQUIPMENT, OFFICE WASTE, RECYCLABLES)**

BIOLOGICAL or INFECTIOUS WASTE

If you have a permitted commodity, observe all permit requirements.

- **BIOHAZARDOUS LIQUIDS**
  - Treat liquid according to your project requirements (i.e., autoclave or chemically treat)
  - Once decontaminated, filter out solids, allow to cool, and flush down the sink drain with water.

- **BIOHAZARDOUS SOLID MATERIALS (NON-SHARPS ONLY)**

  Examples: contaminated gloves, petri dishes, Kim wipes, tissue culture flasks

  - Waste must be collected and contained in containers that are:
    - lined with autoclavable bags constructed to contain all contents and prevent leakage of residual fluids during handling, storage, transport or shipping, double bags may be necessary, polypropylene is the preferable bag as this material can withstand the autoclave temperatures for the required time;
    - closable;
    - labeled with the universal biohazard symbol or red in color;
  - If exterior contamination of the primary container or bag occurs, it shall be placed in a secondary container or bag.
  - Secondary containment shall be:
    - closable
    - constructed to contain all contents and prevent leakage during handling, storage, transport, or shipping
    - labeled with the universal biohazard symbol
    - required when transporting through common areas
  - Bags must be closed prior to removal to prevent spillage or protrusion of contents during handling, storage, transport.
  - Autoclave and dispose in accordance with the JABSOM EHS Standard Autoclave Protocol.

- **BIOHAZARDOUS SHARPS (METAL AND NON-METAL)**

  See the SHARPS section below.

- **UNPRESERVED TISSUES, WHOLE BODY, AND BODY PARTS (VERTEBRATE, INVERTEBRATE)**
- **HUMAN BODY PARTS AND ORGANS (RECOGNIZABLE) ANIMAL TISSUES, WHOLE BODY, AND BODY PARTS**

  Contact JABSOM EHS for assistance with proper treatment and disposal of these items.

➢ AUTOCLAVE MALFUNCTION

In the event that a laboratory's primary autoclave is not operational, the waste shall be autoclaved at the nearest secondary autoclave and transported there in a closed-top, puncture proof, leak proof container. In the event that both the primary and secondary autoclaves are not operational, store biological waste in a laboratory refrigerator, freezer, or cold room until the autoclaves are operational. If this cannot be done, contact JABSOM EHS.

Contact JABSOM or UHCC Facilities about all autoclave malfunctions.

CHEMICAL WASTES

➢ CHEMICAL LIQUID WASTE

Refer to the Hazardous Material Management Program (HMMP) for information on surplus chemicals, hazardous and non-hazardous chemical wastes, compressed gasses and/or cylinders, and wastes generated by facilities operations. You may also contact the JABSOM EHS

- Waste generated must be collected in screw top containers constructed of material that is compatible with the waste.
- Accumulation waste containers must be labeled with:
    - the word WASTE;
    - the complete chemical name (abbreviations are not permitted);
    - the percentage of all components if the waste is a mixture;
    - the name of the generator;
    - the accumulation start date;
    - the hazards (e.g., flammable, poison, corrosive).
- Do not overfill the containers.
- The exterior of the containers should be clean. If there is gross contamination of the exterior, you may have to transfer to another container or bag the container.
- Containers must be stored in a designated satellite accumulation area.
- Containers must be stored in secondary containment if stored on the floor, near a drain, or in a fume hood with a sink.
- Complete the Kaka`ako Hazardous Waste Turn-In Form and submit to JABSOM EHS kakaako-ehso@lists.hawaii.edu.
- For used pump oil, see the OTHER WASTES section below.

JABSOM/UHCC KAKA'AKO DRAIN DISPOSAL RESTRICTIONS

Ethidium Bromide Solutions: <0.01% **by weight** and <2 quarts per day per laboratory
Phosphate Buffer Solutions: <10% **by weight** and <1 quart per day per laboratory
Solutions containing sodium azide as a preservative must not exceed 0.01% sodium azide as sodium azide can react with metal plumbing to result in potentially explosive mixtures.
Salt Solutions: <10% **by weight** [(sodium, potassium, lithium, ammonium): (chlorides, carbonates, phosphates, sulfates, or acetates)] < 2 quarts per day per laboratory
Dyes or Stains: Small, diluted amounts from slide rinsing. No concentrated solutions or significant volumes.
Alcohol Solutions: (methyl, ethyl, and isopropyl only) <10% **by volume** and <1 quart per day per laboratory
Formaldehyde Solutions (diluted): <3% **by weight** and <1 quart per day per laboratory
10% Buffered Neutral Formalin must be submitted as hazardous waste unless it is treated by an approved technology such as Neutralex.
Sugar Solutions: <10% **by weight** and <2 quarts per day per laboratory
Amino Acids and their Salts in solution: <10% **by weight** and <2 quarts per day per laboratory
Citric and Lactic Acids and their Salts in solution: <10% **by weight** and <1 quart per day per laboratory.
Autoclaved Liquids: Infectious liquids, including but not limited to blood, that have been autoclaved and rendered non-infectious, may be poured down the drain after all solid matter is filtered out and the liquid is allowed to cool. If liquids contain other hazardous components (e.g., chemical hazards, radiological hazards), do not autoclave and contact JABSOM EHS for assistance.

- Check with JABSOM EHS if in doubt!
- Intentionally diluting waste so that it can be poured down the drain is not permitted.
- The pH must be between 5.5 and 9.5.
- No solids/particulates, no infectious materials, and no radioactive materials may be allowed to go down the drain (unless specifically permitted to do so by the Radiation Safety Office).

- NOTE: The percentage by weight or volume refers to a total of the items in any category. For example, a solution of 5% sodium chloride and 5% potassium chloride would meet the limit, while a solution of 10% sodium chloride and 5% potassium chloride would not. Similarly, a solution of 10% ethyl alcohol and 5% methyl alcohol would not meet the criteria for drain disposal. A solution of 10% ethyl alcohol and 10% sodium chloride would meet the criteria as they are in two different categories, but the volume permitted per day would be the lower of the two.

➢ CHEMICAL SOLID WASTE

Examples: solid ethidium bromide gel waste/contaminated waste, semi/non-polymerized* acrylamide gel waste/contaminated waste, tips/pipets/dishes contaminated with toxic chemicals, spill clean-up materials.

- Solid waste can be collected in corrugated boxes lined with clear polypropylene bags or "reused" plastic containers (e.g., old detergent bottles) that ensure any residual liquids are contained and prevent any puncture by plastic sharps items such as pipet tips.
- Boxes/bags must be clearly labeled with the contents, hazards, and accumulation start date.
- Do not use red bags or bags labeled with the universal biohazard symbol for chemical waste.
- JABSOM EHS provides plastic buckets for ethidium bromide gel waste and clear polypropylene bags for solid waste collection.
- Do not include unwanted chemicals in these containers, these containers are only for the collection of gel waste or contaminated waste.
- Complete the Kaka`ako Hazardous Waste Turn-In Form and submit to JABSOM EHS kakaako-ehso@lists.hawaii.edu.
- For batteries, mercury containing equipment, etc., see the OTHER WASTES section below.

*Polymerized acrylamide gels may be thrown into the regular trash per the UH Hazardous Materials Officer.

➢ CHEMICAL CONTAMINATED SHARPS (METAL AND NON-METAL)

- See the SHARPS section below.

➢ UNWANTED CHEMICALS

Examples: expired reagents, surplus reagents, expired or unused kits.

- Ensure the containers and labels are in good condition. If containers are cracked or lids do securely close, it is the responsibility of the lab to find an adequate container.

- Complete the Kaka`ako Hazardous Waste Turn-In Form and submit to JABSOM EHS kakaako-ehso@lists.hawaii.edu.

➢ **CHEMICAL PRESERVED TISSUE SPECIMENS (ANIMAL & PLANT)**

- Separate solid from liquid àDispose of liquid as hazardous chemical waste à Contact JABSOM EHS for assistance with proper treatment and disposal of solids.

➢ **CHEMICAL UNKNOWNS**

- All unknowns must be labeled with the work UNKNOWN WASTE.
- Immediately contact JABSOM EHS to coordinate waste analysis.
- **Waste analysis will cost $200.00 per unknown and will be charged to the lab**.

MIXED BIOLOGICAL & CHEMICAL WASTES

MIXED BIOLOGICAL & CHEMICAL CONTAMINATED LIQUIDS
MIXED BIOLOGICAL & CHEMICAL CONTAMINATED SOLIDS

- Contact JABSOM EHS for assistance with proper treatment and disposal of these items.

MIXED BIOLOGICAL & CHEMICAL CONTAMINATED SHARPS

- See the SHARPS section below.

SHARPS (INFECTIOUS BIOLOGICAL, CHEMICAL, NON-CONTAMINATED)

➢ **GLASS (NON-CONTAMINATED BROKEN GLASS)**

- Place in a plastic bag lined puncture resistant corrugated box*
- When the box is full, tape the box closed
- Write "BROKEN GLASS" on the outside of the box
- Label with researcher's name and accumulation start date
- Dispose in the trash compactor. These items cannot be recycled. Do not leave these items left sitting outside of the trash compactor; if trash compactor is full, contact **JABSOM Kaka'ako Security** at **(808)-692-0911**.

*Glass disposal boxes can be purchased individually from the UH Manoa Chem. Stockroom.

➢ **METAL SHARPS**

All metal sharps must be submitted to JABSOM EHS for proper disposal as the landfill does not accept any metal sharps.

➢ **BIOLOGICAL CONTAMINATED METAL SHARPS**

Examples: hypodermic needles with syringes/tubing, blades, scalpels, razors, lancets.

Contaminated sharps shall be discarded immediately or as soon as feasible into containers that are manufactured to contain biohazardous sharps*, these containers are:

- Closable
- Puncture resistant
- Leak-proof on sides and bottom
- Labeled with the universal biohazard symbol and red in color
- Easily accessible to employees and located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found
- Maintained upright throughout use
- Replaced routinely and not be allowed to overfill or pass the manufacturer's fill line
- Label the containers "METAL SHARPS"
- Containers used for disposable metal sharps may not be reused
- Autoclave and Contact JABSOM EHS for pick up.

*These containers can be purchased individually from the UH Manoa Chem. Stockroom.

➢ **CHEMICAL CONTAMINATED METAL SHARPS**

Examples: hypodermic needles used to load gels, needles used to load machines, blades used to cut gels.

Contaminated sharps shall be rinsed if necessary to collect rinsate that is submitted as chemical waste. Contaminated sharps shall be discarded into containers* that are:

- Closable
- Puncture resistant
- Leak-proof
- Labeled with "CHEMICAL CONTAMINATED METAL SHARPS"
- Labeled with the researcher's name and accumulation start date
- Replaced routinely and not be allowed to overfill
- Contact JABSOM EHS for pick up.

*Containers can be purchased but must not be labeled with the universal biohazard label and cannot be red in color. Acceptable containers include reused detergent bottles.

➢ **MIXED BIOLOGICAL & CHEMICAL CONTAMINATED METAL SHARPS**

- Follow the procedure for biological contaminated metal sharps above, but do not autoclave.
- Label as "BIOLOGICAL AND (CHEMICAL NAME) CONTAMINATED METAL SHARPS"

- Label with the researcher's name and the accumulation start date.
- Contact JABSOM EHS for assistance with proper treatment and disposal.

➢ PIPETS

○ NON-CONTAMINATED PIPETS/PIPET TIPS (GLASS OR PLASTIC)

Every effort shall be made to protect custodial staff from puncture wounds; therefore, any item that can puncture a plastic bag is not allowed in the regular trash and must be contained in a puncture resistant box (e.g., corrugated box).

- Collect items in a puncture proof container (e.g., reused detergent bottle, corrugated box lined with plastic bag)
- When the container is full, secure top or lid with tape.
- Label the container as "NON-HAZARDOUS, NON-METAL SHARPS"
- Label with the researcher's name and accumulation start date.

- Either place the sealed, labeled container in the regular trash, next to the lab trash receptacles, or place the container in the trash compactor. Do not leave these items left sitting outside of the trash compactor; if trash compactor is full, contact **JABSOM Kaka'ako Security** at **(808)-692-0911**.

○ BIOLOGICAL CONTAMINATED PIPETS/PIPET TIPS (GLASS & PLASTIC), GLASS COVER SLIPS, GLASS SLIDES, ETC.

Contaminated sharps shall be discarded immediately or as soon as feasible into containers that are:

- Closable
- Puncture resistant
- Leak-proof on sides and bottom
- Labeled with the universal biohazard symbol or red in color
- Easily accessible to employees and located as close as feasible to the immediate area where sharps are used or can be reasonably anticipated to be found
- Maintained upright throughout use
- Replaced routinely and not be allowed to overfill or pass the manufacturer's fill line
- Place in autoclavable Red Biohazard Bag
- Autoclave and dispose in accordance with the JABSOM EHS Standard Autoclave Protocol.

- **CHEMICAL CONTAMINATED PIPETS/TIPS (PLASTIC & GLASS), GLASS COVER SLIPS, GLASS SLIDES, ETC.**

Contaminated sharps shall be rinsed if necessary to collect rinsate that is submitted as chemical waste. If possible, segregate items based on the type of chemical contamination.

Contaminated sharps shall be discarded into containers* that are:

- Closable
- Puncture resistant
- Leak-proof
- Labeled with "(CHEMICAL NAME) CONTAMINATED NON-METAL SHARPS"
- Labeled with the researcher's name and accumulation start date
- Replaced routinely and not be allowed to overfill
- Contact JABSOM EHS for pick up.

*Containers must be compatible with the chemical contaminant. Acceptable containers may include reused detergent bottles, corrugated boxes lined with polypropylene bags, reused glass bottles with screw top lids, or reused coffee canisters.

- **MIXED BIOLOGICAL & CHEMICAL CONTAMINATED PIPETS/PIPET TIPS**
  - Collect the contaminated liquid and rinsate and submit to JABSOM EHS.
  - Place the pipet/tips in a puncture proof, leak proof container.
  - Label as "Biological and (Chemical Name) Contaminated Non-Metal Sharps"
  - Label with the researcher's name and the accumulation start date.
  - Contact JABSOM EHS for assistance with proper treatment and disposal.

RADIOACTIVE WASTE

Contact the EHSO Radiation Safety Program **(808)-956-6475** for assistance with the proper disposal of these materials.

OTHER WASTE CATEGORIES

The following must be turned into JABSOM EHS as regulated waste:

- Nickel-cadmium batteries, lithium batteries, laptop batteries
- Microscope light bulbs that contain mercury
- PCB containing items (e.g., old ballasts)
- Mercury containing switches/relays/bulbs
- UV light tubes/bulbs/lamps
- Used pump oil, must be labeled "USED OIL" and turned in to JABSOM EHS.

Household batteries and **household light bulbs** may go into the regular trash.

For **unwanted lab equipment**, refer to the procedures and form at Laboratory Equipment Disposal and Decontamination Guidelines and Forms

Fluorescent light tubes will be collected by Facilities when they replace the old tubes with the new tubes; Facilities collects these tubes for proper disposal.

Electronic waste (computers, keyboard, monitors, mouse, scanners, fax machines, cables, TV, VCR, projectors, hard drives, desk-top size copy machines, laptops, networking equipment) can be brought down to the mailroom for collection and future e-waste disposal.

Used **toner cartridges** can be submitted to JABSOM EHS for hazardous waste disposal. Please also inquire directly to the company about returning used toner cartridges to them for disposal as they will sometimes provide free return mail envelopes and packaging.

Black and white photographic film and x-ray film should be submitted to JABSOM EHS for hazardous waste disposal, since they contain large amounts of silver. Film waste boxes will be placed in JABSOM and UHCC darkrooms for collection. Do not throw film into the regular trash.

Microwaves should be submitted to JABSOM EHS for hazardous waste disposal. Microwaves used for research purposes should be properly decontaminated and decontamination form should be affixed to unit before waste disposal request.

Refrigerated equipment are collected at the mailroom for disposals throughout the year. Disposal fees will apply to the department. Freezer units must be completely defrosted; if used for research/laboratory purposes, must be properly decontaminated and you must affix the decontamination form to unit before pickup. Contact JABSOM EHS for more information.

Contact Facilities about **unwanted lab furniture**, **office furniture**, or **office/break room equipment**.